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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,646	12/13/2000	Wolfgang Beilfuss	S 5225 - OP/MM	4803
466	7590	03/19/2004	EXAMINER	
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			CHOI, FRANK I	
			ART UNIT	PAPER NUMBER

1616

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/734,646	Applicant(s) BEILFUSS ET AL.	
	Examiner Frank I Choi	Art Unit 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-31 and 35-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-31 and 35-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 30, 31, 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 30 indicates that the bactericidal is 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)tri-ethanol, however, the said bactericidal was deleted from Claim 29 on which Claim 30 is dependent which renders claim 30 indefinite.

Claims 31 and 48 are dependent on cancelled claims which renders the claims indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Examiner has duly considered Applicant's arguments but deems them moot in light of the new grounds of rejection herein.

Claims 30, 31, 48, 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-121109 in view of Reeve (U.S. Pat. 5,210,094), DE 2337755 (Abstract), DE 19534532 (Abstract), Paulus et al. (US Pat. 4,166,122), Raad et al. (U.S. Pat. 6,267,979) and Grier et al. (US Pat. 4,119,779).

JP 11-012109 teaches the combination of benzisothiazolone, mercaptopyridine N-oxide and hexahydro-1,3,5-tris (2-hydroxyethyl)-s-triazine (paragraphs 0010-0020, 0041). It is taught that hydrophilic organic solvents, such as ethylene glycol, propylene glycol, dipropylene glycol, and glycol ethers can be added to dissolve the active principle (paragraphs 0022-0023).

Reeve teaches that isothiazolones are highly effective microbiocides but that they can be inactivated by components of industrial products as well as over long term storage, as such, isothiazolones are combined with stabilizers, including formaldehyde donors, orthoesters, epoxides and carbonyl compounds (Column 1, Column 2, lines 1-15). It is taught that sulphur containing stabilizers such as mercaptopyridine-N-oxides protect isothiazolones against chemical degradation and also act as microbiocides and that the composition can additionally contain solvents such as glycols alcohols and the like (Column 3, Column 4, lines 1-30).

DE 2337755 teach that N-formals or O-formals act synergistically with mercaptopyridine as germicides (Abstract).

DE 19534532 teach that solubilizers such as phenoxyethanol, phenoxypropanols, phenoxybutanols, dipropylene glycol, etc. improve the stabilizing effect of stabilizers on isothiazolones (Abstract).

Paulus et al. teach that 5,5'-dimethyl-di-(1,3-oxazolidin 3-yl) methane which is prepared by the reaction of formaldehyde and isopropanolamine is effective as an industrial microbial agent and which can be combined with other active compounds such as, reaction products of alcohol or amines with formaldehyde, pyridine thiol-1-oxide, 1,2-benzisothiazolone and 2-mercapto-benzthiazole (Columns 1,2).

Raad et al. teach that biofouling causes problems in circulating liquid systems, including increase in corrosion (Column 1). It is taught that chelators, including EDTA and the like, assist in disrupting and/or dissolving glycocalyx, thereby improving that activity of antimicrobial compounds such as formaldehyde and isothiazolones, bind metal ions used by bacteria and are growth inhibitory against species of air and water born microorganisms (Columns 9-13).

Grier et al. teaches that corrosion inhibitors such as inorganic salts of 2-mercaptobenzothiazole, alkenylsuccinic acids and of stearic acid, butyl esters of lipid-soluble carboxylic acids are preferably added in combination with formaldehyde condensation products and that methyl alcohol and glycols act as freezing point depressants (Column 5, Column 6, lines 8-17).

The difference between the prior art and the claimed invention is that the prior art does not expressly disclose the combination of a bactericidal N-formal, fungicide and stabilizer in the claimed amounts. However, the prior art amply suggests the same as the combination of N-formals, isothiazolinones and stabilizers, such as mercaptopyridine N-oxides, and other disinfectants, chelates and corrosion inhibitors are known in the art. As such, it would have been well within the skill of and one of ordinary skill in the art would have been motivated to combine the claimed N-formals with other biocides, such as isothiazolones and O-formals, stabilizers, such as mercaptopyridine N-oxides, solvents, such as glycols and alcohols, complexing agents, such as EDTA and the like, with the expectation that the composition would exhibit increased microbiocidal efficacy and be suitable for use on industrial substrates containing metals.

Examiner has duly considered Applicant's arguments but deems them unpersuasive.

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Further, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Applicant argues that the precise combination of specific ingredients to obtain a synergistic effect teaches away from the claimed invention. However, Applicant does not appear to provide any evidence supporting the conclusion that the ratios disclosed in the JP 11-12109 publication exclude or somehow teach away from the amounts in Applicant's claims or why one of ordinary skill in the art would lack the motivation or reasonable expectation of success of combining and modifying teachings of JP 11-12109. Applicant's claims indicate that benzisothiazole and mercaptopyridine N-oxide is present in an amount of from 5-10% by weight each and that 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)tri-ethanol is present in an amount of 40% to 90% by weight. JP 11-012109 discloses that the weight ratio between benzisothiazole and mercaptopyridine N-oxide should be 1:01-10, preferably 1:1-5 and that the total the above to 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)tri-ethanol should be 1:1-100, preferably 1:5-50 (JP 11-012109, Paragraph 0020). If one converts the ratios (weight in parts) into percents by weight, the percents claimed by Applicant are clearly taught and suggested by JP 11-012109 (See also JP 11-012109, Formulation examples 4,5,6,7, paragraphs 0034, 0035).

Applicant argues that the REEVE publication also relies on a precise combination of ingredients to obtain its desired effect and that the Office Action fails to show why one of ordinary skill in the art would disregard these teaching in order to obtain the claimed invention. The REEVE publication discloses that the ratio of 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)tri-ethanol to mercaptopyridine-N-oxide is 1:1 to 99:1, which, similar to above, clearly suggests the percents by weight claimed by Applicant. As such, contrary to Applicant's arguments, Examiner has not disregarded the teachings of the prior art and Applicant has not provided any evidence which shows that the prior art cannot be combined or modified to arrive at the claimed invention.

Applicant argues that while these publications disclose individual components of the claimed invention, none of these publication provide the necessary motivation and reasonable expectation of success of combining the components as set forth in the claimed invention or their corresponding amounts. However, as indicated above, the publications teach both the combination of components and the corresponding amounts, and provides motivation in terms of increased microbiocidal efficacy.

Therefore, the claimed invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention has been collectively taught by the combined teachings of the references.

Claims 29, 31, 35-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/52416 in view of Reeve (U.S. Pat. 5,210,094), DE 2337755 (Abstract), DE 19534532 (Abstract), Paulus et al. (US Pat. 4,166,122), Raad et al. (U.S. Pat. 6,267,979) and Grier et al. (US Pat. 4,119,779).

WO 98/524416 teaches a composition comprising a biocidal N-formal, 3,3'-methylenebis(5-methyloxazolidine), which may be combined with biocidal O-formals (Pg. 3, lines 17-35). It is taught that the composition can contain further additives which have a favourable effect on the technical properties of the composition, such as solvents, such as propylene glycol, phenoxypropanol and phenoxyethanol and that certain glycol have a positive influence on the odor of the composition by reducing the emission of volatile substances (Pg. 4, lines 25-33). It is taught that the composition can further include other biocidal active ingredients, such as isothiazolone and mercaptopyridines, and additives which improve stability (Pg. 5, lines 7-20).

Reeve (U.S. Pat. 5,210,094), DE 2337755 (Abstract), DE 19534532 (Abstract), Paulus et al. (US Pat. 4,166,122), Raad et al. (U.S. Pat. 6,267,979) and Grier et al. (US Pat. 4,119,779) are cited for the same reasons as above and are incorporated herein to avoid repetition.

The difference between the prior art and the claimed invention is that the prior art does not expressly disclose the combination of a bactericidal N-formal, fungicide and stabilizer in the claimed amounts. However, the prior art amply suggests the same as the combination of N-formals, isothiazolinones and stabilizers, such as mercaptopyridine N-oxides, and other disinfectants, chelates and corrosion inhibitors are known in the art. As such, it would have been well within the skill of and one of ordinary skill in the art would have been motivated to combine the claimed N-formals with other biocides, such as isothiazolones and O-formals, stabilizers, such as mercaptopyridine N-oxides, solvents, such as glycols and alcohols, complexing agents, such as EDTA and the like, with the expectation that the composition would exhibit increased microbiocidal efficacy and be suitable for use on industrial substrates containing metals.

Examiner has duly considered Applicant's arguments but deems them unpersuasive.

Applicant argues that WO 98/52416 publication requires the use of iodoproynylbutyl compounds and that in light of this teaching Applicant's believe that one of ordinary skill in the art would lack the motivation that reasonable expectation of success of combining and modifying the teachings of WO 98/52416 with the other references. However, Applicant does not provide any evidence showing the same and in fact WO 98/52416 clearly teaches that isothiazolone and mercaptopyridines can be added to improve the properties of the biocidal composition and that other additives can be added (WO 98/52416, pg. 5, lines 7-20).

Applicant argues that the Office Action fails to show the necessary motivation and reasonable expectation of success that one of ordinary skill in the art would need obtain the claimed invention in view of the cited publications and that the publications fail to render obvious the claimed invention. However, Applicant provides no evidence supporting the same and the prior art as indicated above does provide motivation and reasonable expectation of success in that the biocidal agents are known to be combined together to increase microbiocidal efficacy, and the various additives are known to be combined with one or more of said biocidal agents to improve the properties of the biocidal composition depending on stability, point of use, etc., such as chelators and corrosion inhibitors to prevent corrosion when the biocidal composition is used in circulating water systems and alcohol solvents to dissolve the active agents and for stability.

Therefore, the claimed invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention has been collectively taught by the combined teachings of the references.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

A facsimile center has been established in Technology Center 1600. The hours of operation are Monday through Friday, 8:45 AM to 4:45 PM. The telecopier number for accessing the facsimile machine is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Choi whose telephone number is (571)272-0610. Examiner maintains a flexible schedule. However, Examiner may generally be reached Monday-Friday, 8:00 am – 5:30 pm (EST), except the first Friday of the each biweek which is Examiner's normally scheduled day off.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Thurman Page, can be reached at (571)272-0602). Additionally, Technology Center 1600's Receptionist and Customer Service can be reached at ~~(703) 308-1235~~ and ~~(703) 308-0198~~, respectively. (571) 272-1600

FIC

March 18, 2004



JOHN PAK
PRIMARY EXAMINER
GROUP 1600